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CURRENT LITERATURE.

Fossil woods of the Northwest.²

In these few pages are recorded the latest results of Dr. Dawson's investigations of the fossil woods of the northwestern portions of North America. After reviewing briefly the work done by others in this field, he states as his opinion "that no specific or even generic distinctions can be made with absolute certainty on the evidence of structure alone." For monocotyledons and dicotyledons this statement is undoubtedly true at present, but for conifers perhaps a little more latitude might be admitted, at least as regards generic distinctions. The genus *Pinus* can be with certainty distinguished, as can several other generic types.

Following out this idea, he has found it expedient not to give specific names in any case, particularly, he says, "as it seems in every way likely that most of them belong to species otherwise named from specimens of their leaves and fruit." They are also unaccompanied by descriptions. This view, on the whole, is to be regretted, for if paleobotany is ever to be of assistance to geology it must furnish a set of criteria, as complete as possible, by which stratigraphic relations may be determined. It would, of course, be a matter of great satisfaction if the trunks, leaves and fruits could be correlated, for we should then have very complete stratigraphic data; but as this can be done only in very rare instances, it seems unfortunate that one set of facts should be selected to the exclusion of the other.

The paper is divided into several parts, treating of various formations. Descriptions are also given of some leaves and fruits of these formations, and in conclusion deductions are made as to the relations of the Laramie to the British Eocene.—F. H. K.

Sphagnaceæ of North America.³

In this brief paper M. Cardot summarizes his conclusions regarding our *Sphagna*. North America possesses all the European types except *S. Angstroemii*, and several, chiefly southern, which are not found in Europe. Sixteen species and nine sub-species are recognized, as against the twenty-seven species of Lesquereux and James. The chief changes from their manual are as follows:

Two new sub species (of *S. cymbifolium*) are added, *S. medium* Limpr. from Florida, Isle Miquelon and in Musci Bor. Am. no. 3, and *S. affine* Ren. et Card. from Florida and New York. Besides these, a number of new forms and varieties belonging to various species are described.

² DAWSON, SIR WILLIAM.—Note on fossil woods and other plant remains from the Cretaceous and Laramie formations of the western territories. Trans. Roy. Soc. Canada, Section IV, 1887. pp. 31-37.

³ CARDOT, JULES.—Révision des Sphaignes de l'Amérique du Nord. (Extrait des *Bulletins de la Société royale de botanique de Belgique*, tome xxvi, première partie.) 23 pp., 8 vo. Gand: C. Annoot Braeckman, Ad. Hoste, succ'r. 1887.

S. rubellum Wils. is reduced to a variety of *S. acutifolium*; *S. Muelleri* = *S. molle*; *S. Mendocinum* = *S. cuspidatum*; *S. sedoides* = *S. Py-læsii*. *S. strictum* Lindb. becomes *S. Girgensohnii* Russ.; and *S. intermedium* Hoffm. is changed to *S. recurvum* Beauv. with doubtful propriety. *S. cyclophyllum* is considered as probably an immature form of *S. subsecundum*. *S. macrophyllum* var. *Floridanum* is raised to the rank of a species, *S. Floridanum* Card. While it is a good variety, we can not see that it has any well grounded claim to specific rank. To these changes, with the two exceptions noted, our studies incline us to accede.

M. Cardot greatly desires to receive specimens of *Sphagna* from our bryologists, in order to make his work more complete, and we hope our collectors will not forget him in their exchanges. His address is Stenay, Meuse, France.

American Characeæ.

Botanists are beginning to understand that their best work is done by confining their attention to a single subject or a single group. Selecting some genus or order that has been neglected—and very few have not been neglected—they give it an exhaustive study, and the result is a better understanding of the group than has ever before been attained. It is in this way only that we can expect to build up modern botany. In a work⁵ that lies before us the author is to be commended for his selection of a very much neglected group, and congratulated upon the very complete and careful way in which he has gone about to “work it up.” This first part is but introductory, laying that foundation of knowledge which is necessary for an intelligent study of the group. The second part, promised in a year or two, will contain descriptions (with illustrations) of the species now known to inhabit American waters. The introduction contains directions for collecting, with the habitats and proper condition of the plant. The interesting observation is made upon *Chara fragilis* that it is universal, “found in every country and clime, in ice-water at the north and in the hot springs (boiling water) of the Yellowstone.” An historical account of the group is given, followed by the discussion of germination, development of the cortex, stipules, leaves, branches, organs of fructification, development of the spore, all fully illustrated.

The part closes with a classification and synopsis of the species, prepared by Dr. O. Nordstedt and translated with his permission. It seems that before the researches of the late Professor A. Braun the classification of Charads was “confusion worse confounded.” His researches into the morphology of the group laid the sure foundation for classification, and “Characeæ began, as it were, a new existence in the scientific world, almost comparable to the birth of the Linnæan system.” Braun’s “Frag-

⁵ ALLEN, TIMOTHY FIELD.—The Characeæ of America, Part I, containing the introduction, morphology and classification. 64 pp., 55 figures, large 8vo. New York: Published by the author, 1888.—\$1.00.

menta" have been edited by Dr. Nordstedt. Dr. Allen's work should stimulate botanists to collect our American species, for, according to the author, very little of it has been done.

Minor notices.

THE *Sphagnaceæ* come in for a large share of the study of mosses. Dr. Martin Waldner has published⁶ details of his investigations on the development of the sporogonium of *Sphagnum* and *Andreaea*, the results of which were summarized some time ago in the *Botanische Zeitung*.⁷ These researches relate almost wholly to the early stages of the development of the sporogonium, and the author has traced out with much care the position and succession of the dividing walls which cut up the oospore into segments. In both genera the origin of the spore-layer, the walls of the spore case and the columella are pointed out and illustrated on the excellent plates. For the details we must refer to the paper itself.

From the systematic side, Dr. Karl Müller (Halle) adds⁸ to our knowledge of the *Sphagna*. The paper is prefaced by a brief characterization of seven sections of the genus for which new names are proposed. In his remarks on the specific characters of *Sphagna* the author indicates his belief in the autonomy of many of the forms which have been referred to the same species by recent *Sphagnologists*. Then follow descriptions (Latin) of thirty new species from various localities in Africa, South America, Mexico, Australia and adjacent islands.

IN HIS notes on the genus *Taphrina*,⁹ Mr. Robinson gives a synopsis of the best known North American species, eight in number, with remarks upon their morphology and distribution. *Ascomyces deformans* var. *purpurascens* is raised to the rank of a species, and referred to "*Taphrina* Fries, char. a *Tulasne* emend.," as are all the species of *Ascomyces* and *Exoascus*. The paper is an outcome, we infer, of a winter's work in Dr. Farlow's laboratory.

WE HAVE received a German abstract, by Dr. Schönland,¹⁰ of Prof. F. O. Bower's paper on the development, morphology and the vegetative organs of *Phylloglossum Drummondii*, which was published in *Trans. Royal Soc. London* for 1885. *Phylloglossum* is specially interesting, be-

⁶WALDNER, DR. MARTIN.—Die Entwicklung der Sporogone von *Andreaea* und *Sphagnum*. pp. 25, pl. iv. (i, ii, iii, double) 8vo. Leipzig: Arthur Felix, 1887.—M. 2.60

⁷*Bot. Zeit.* (1879.)

⁸MÜLLER, CAROLUS—*Sphagnorum novorum descriptio*. 8vo. Separat Abdruck aus *Flora*, no. 26 u. 27. pp. 20. 1887.

⁹ROBINSON, BENJ. L.—Notes on the genus *Taphrina*. pp. 14. Reprint from *Annals of Botany*, November, 1887.

¹⁰BOWER, F. O.—Ueber die Entwicklung u. die Morphologie von *Phylloglossum Drummondii*. I Teil: Die vegetative Organe. (Auszug aus dem englischen Original von Dr. S. Schönland.) pp. 8, fig. 1. Sep. Abdr. aus *Bot. Jahrbücher*, viii band, 4 heft. 1887.

cause it exhibits such a close correspondence of its mature characters with the structure of the embryonic Lycopodium.

CULTIVATED VERBASCUMS have always been favorite plants for hybridizing. Dr. Victor Schiffner¹¹ has given us an interesting account of these hybrids in general, and then describes minutely some new hybrids from *V. pyramdatum* which were discovered in the summer of 1885 in the Botanical Gardens at Prague. They were growing spontaneously, and were of sufficient interest to justify a careful comparison of their characters with those of their parents. The hybrids studied resulted from the crossing of *V. pyramdatum* with *V. nigrum*, *V. phœnicum*, and two different combinations with *V. phlomoides*.

NOTES AND NEWS.

DR. J. T. I. BOSWELL, the well known English botanist, died January 31st.

A BILL to establish an experimental grass and forage station has been brought before congress by Senator Platt.

CENTURIES XX and XXI of Ellis' North American Fungi will be issued early in the spring—probably in March or April.

A REVISED EDITION of Underwood's "Ferns and Their Allies" will be issued shortly from the press of Henry Holt & Co., New York.

DR. ED. PALMER has just returned from Mexico. His collection of plants, some 600 species, is on the way, and doubtless contains many new things.

THE APPEARANCE of the new journal, *Garden and Forest*, has been delayed by the serious illness of Professor Charles S. Sargent, the editor in charge.

THE *Index Seminum*, the catalogue of seeds for exchange at the Jardin des Plantes, has just been received. It contains 18 quarto pages, 4 columns to a page.

THE REGENCY of the Smithsonian Institution, made vacant by the death of Dr. Gray, has been tendered by the U. S. Senate to Prof. Andrew D. White, ex-president of Cornell University.

THE *Journal of Botany* for February contains descriptions of 4 new ferns and 13 new Tillandsias. Dr. Baker, in his synopsis of the Tillandsiæ, has reached the 165th species of Tillandsia.

MR. A. P. MORGAN continues his contributions on the "Mycologic flora of the Miami Valley, Ohio," in the *Journ. Cin. Soc. Nat. Hist.* for January. The paper includes the order Thelephorei under Hymenomycetes.

¹¹ SCHIFFNER, DR. VICTOR.—Ueber Verbascum-Hybriden und einige neue Bastarde des Verbascum pyramdatum M. B. (Bibliotheca botanica, heft 3.) 15 pp., 2 plates, 4°. Cassel: Theodor Fischer, 1887.—4 marks.